

## REMARKABLE AIR-SAILING.

**The Wright Brothers' Machine Leads the World in Aeronautics. Wonderful Exhibitions at Fort Myer—Many High Officials and Officers Among the Spectators—One Flight of 62 Minutes and 15 Seconds—The Machine was Under Perfect Control and Flew Like a Bird—Another Flight for Over an Hour Against a Strong Wind.**

## Aeroplanes and Balloons.

There is but little real scientific interest in ballooning. The most that can be hoped for in this is an advance in our knowledge of aerial currents and other matters of importance in navigating the air.

The real interest is in machines heavier than air which will fly like a bird. Military ballooning is largely a fad, and but little can be hoped for in it in actual warfare. The balloon is so large and clumsy, the gas-making apparatus is so ponderous, that a battery of balloons, and after the balloon is inflated it is a good mark for the enemy's guns. It is a good mark for the enemy's guns. It is a good mark for the enemy's guns.

Balloons were quite thoroughly tried during our war, when great expectations were entertained of them. The best results attained, however, were the scares they gave the enemy in the fears by the Confederates that the balloons had discovered vast more than they were really did. If the balloons were captive they danced around so that but little could be observed with accuracy, and if they were left free they were at the mercy of vagrant currents of air.

The best use ever made of ballooning was by the French during the siege of Paris, when they did some good work in carrying people into and out of the lines of the besiegers.

It is quite otherwise with machines heavier than air, which imitate a bird's

carrying a passenger, which was six minutes and 26 seconds. It is estimated that he made 36 miles the first flight and 38.5 the second.

Among the spectators were three Cabinet members, Secretary of War Wright, Secretary of the Navy Metcalf and Secretary of Commerce and Labor Strauss, together with practically every Army officer holding an important executive position in the War Department.

Among the Army officers who arrived on the grounds before the second flight were Brig-Gen. William Crozier, Chief of Ordnance; Brig-Gen. William M. Marshall, Chief of Engineers; Brig-Gen. William W. Hetherspoon, President of the War College; Brig-Gen. Arthur Murray, Chief of Artillery; Brig-Gen. William P. Duval, and Lieut-Gen. Miles, retired, Assistant Secretary of War Oliver was also present, as were a number of scientists, including Charles D. Walker, President of the Carnegie Institution and Secretary of the Smithsonian Institution.

The only foreign military attaché among the spectators was Maj. Fourmiller of the French army, who had returned from France, where he witnessed several flights by Wilbur Wright. On Thursday Mr. Wright made another astonishing achievement in bucking a 10-mile breeze, which tossed his aeroplane like a ship at sea. He made 58 circles over the parade grounds at Fort Myer, and remained aloft 65 minutes and 22 seconds, during which he went about 43 miles. The highest altitude reached was 200 feet, to which he rose because the wind was hurting his eyes and affecting the flight of the machine.

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## THE WRIGHT AEROPLANE IN THE AIR.

There exhibitions are preliminary to the official tests which must be made on or before Sept. 23 to determine whether the machine will be accepted by the War Department in accordance with the offer published last year.

There are other competitors for the prize and A. M. Herring is under contract to deliver an aeroplane at Fort Myer, for which he will receive \$20,000 if he can successfully meet the conditions, which have been attended by all of the higher officials in Washington and thousands of the citizens. The interest has been so great and the attendance so enormous that the garrison at Fort Myer has been doing guard duty to hold the crowd back from the place where the machine was housed, from which it started and to which it returned. His first great flight was made Tuesday, Sept. 8, when he was in the air 11 minutes and 19 seconds, during which he circled the drill grounds 13 times at an average speed of 25 miles an hour. The second flight lasted seven minutes and 34 seconds, during which Mr. Wright flew around the grounds eight and a half times. He alighted each time with perfect ease, and had his aeroplane under complete control all the time. On Wednesday, Sept. 9, he made the longest flight ever accomplished in a heavier-than-air flying machine. This was one hour, two minutes and 15 seconds, which is 32 minutes better than any previous heavier-than-air machine record. He followed this by another flight of 57 minutes and 31 seconds, and then made the longest flight of any heavier-than-air machine

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The Scientific American says of the construction of the machine: "A close scrutiny of the Wright aeroplane establishes one by its great simplicity. The main planes are slightly arched downward at their ends. Their front edges are perfectly rigid, only the ends and rear edges being flexible. The outer ends of the lower plane at the end and second uprights are connected by a wire that runs thru pulleys attached to the upper plane, while the corresponding ends of the upper plane are attached in a similar manner, with the exception that the connecting wire, in the form of a chain, is carried forward thru pulleys and around the hub of one of the three vertical levers, so that a fore-and-aft movement of this lever causes the rear edges of the planes to dip down at one end and to rise at a corresponding amount at the other. Close beside this lever, and in a rotary forming part of it, is another vertical lever that moves the twin vertical rudder. In making a turn the angle of incidence of the outside of the plane is at first increased, which causes the machine to rise at this end. The tendency which it has to turn in the opposite direction as a result of the increased resistance resulting from the

greater angle is overcome by means of the vertical rudder. As soon as the machine has tipped inward and started to make the curve the positions of the wing ends are reversed. The angle then being given to the inner end. If this procedure is not followed, the aviator cannot turn the aeroplane, and it is for this reason that a wind fails to upset it. The horizontal rudder is operated by a straight inclined rod running directly from the lever to the two superposed surfaces in front. This rudder is used to maintain the longitudinal equilibrium and also for varying the height. It is operated by the left hand of the aviator, and until his hand becomes used to working it the aeroplane is bound to do considerable bobbing up and down.

Starting the Machine.

The aeroplane is launched from a car which runs upon a railroad. The motors are first started, and when they are ready, weights drop from a tower to propel the car forward at a speed of 28 miles an hour in a distance of 50 feet. This speed is sufficient to cause it to rise readily in still air. This method of starting is modeled after that devised by Prof. Langley, but has been improved by the Wrights.

Pickett's Charge.

Editor National Tribune: As a private musician, about all the good I did in the battle of Gettysburg was to bring a faint water, but I couldn't help seeing some of it. I was certainly astonished, in the afternoon of the third day, to see the boldness of the attempt to break the Union center. The idea of men marching in battle line, three-quarters of a mile across an open plain, within fair range of 20 batteries, looked to me as being foolhardy. And besides this, the musketry fire which they must expect to face at short range. It is yet a surprise to me that so many escaped alive. This line of the Confederates from where I stood, looked like one line of battle, about three-fourths of a mile in length, the nearest end being, perhaps, a mile and a half distant. As they came on I could look directly down their line. I am sure they could have done better if there had been no danger at all. When our musketry opened, however, then came the test. This began at about 200 yards. Still they advanced, and then they halted. The distance, and then most of the line halted. Near their right, at this time, there seemed to be a concentrated effort to break through. The line of the Union center, which looked 10 or 20 men deep, broke in over our line. Yet I could see no panic; simply a desperate hand-to-hand fight, lasting, perhaps, a

few minutes. In some way, our men by that time got the best of it, and very soon the whole rebel line were in full retreat. When this break first occurred, the battery men, just in rear, began to hitch up their horses. They were just ready to move when the tide turned. Immediately they unhooked the teams, and as soon as the coast became a little clear, again commenced firing. In the retreat of the Confederates it was every man for himself; looked like shaking pepper out of a box; no two together. About a third of a mile away they all disappeared. (I suppose in some low ground.) Presently, another line rose up from this place, not more than half as long as the first; but after firing only a few shots, they disappeared. A little later, a third line appeared, still less in extent. These also retreated almost the first thing they did.

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